



Dart Hawkesbury
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D5518-1

Job Sheet 168538



Part No: D5518-1

Job Qty: 72 ea

Part Name: Crossbolt Spacer



Part Weight: 0 lbs

Job Created: 11/16/17

Due Date: 12/15/17

Type: SOLD

Ship Via:

Status: Scheduled

Priority: Medium

Job Tracking No:

Created By: Mario Poulin

Description:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard	Workcenter/Supplier		Sign-off
					Setup Run hrs Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	72 Ea		12/14/17	0.00 0.00	Start Up Machining		
100	Hardinge	72 pcs		12/14/17	0.00 3.32	Hardinge		
110	QC	72 pcs		12/14/17	0.00 0.00	QC2		
120	QC	72 pcs		12/14/17	0.00 0.00	QC8		
130	Outsource	72 pcs		12/14/17	0.00 0.00	Outsource1		
140	Packaging	72 pcs		12/14/17	0.00 0.00	Packaging2		
150	QC	72 pcs		12/14/17	0.00 0.00	QC6		
160	HandFinish	72 pcs		12/15/17	0.00 0.37	HandFinish4		
190	Packaging	72 pcs		12/15/17	0.00 0.00	Packaging3		
200	QC21-SA	72 Ea		12/15/17	0.00 0.00	QC21		

Part Op 100 - 1- Machine as per Folio FB FOLIO REV: _____ DWG REV: _____ ***DO NOT CHAMFER OUTSIDE DIA***

Descriptions: 2- Deburr ID

130 - ***HEAT TREAT AS PER DWG ***

160 - WASH SPACER AS PER QSI005

190 - ***STOCK IN SKIDTUBE CELL*** LOCATION : LG001

DAS
13
9-89

NOV 22 2017

P/O: 38454

Job Allocations

Operation	Component Part	Required	Inventory	Allocated	Std Qty
90-Start up Operation	M6061T6T0.375W.058	25	71	0	0

Part Specifications

Specifications could not be found.

Plex 11/16/17 9:11 AM dart.poulin.mario

WORK ORDER NON-

QA Closed: Date:

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION	
	Rework	☐
	Scrap	☐
	Use-as-is	☐
	Suspected Unapproved ☐	

Date : _____ Step #: _____

Description Work Order Deviation

Mtg Date: 11/20/17
Job No: 168538

D5518-1

PART NO:
Revision:
Operation:
Change No:

D5518-
Start up

Dart Aerospace Ltd.

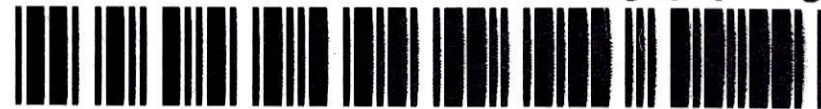
Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
TEL: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

Mtg Date: 12/07/17
Job No: 168538

PART NO:
Revision:
Operation:
Change No:

D5518-1
Outsource

Crossbolt Spacer



DART
AEROSPACE
5018582

QC / QA Coordinator
Approval

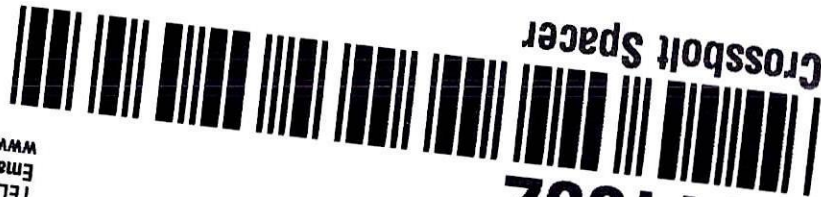
Root Cause

Environment		No Re- work
Design		Operat ion
Doc/Data		Offset
Equip/Tooling		Suppl y
Handling/Pre p		Train ing
Material		Use f or
Internal Transport		Poor
Tribal Knowledge		Rus s
LOA		Product improve ment
Substation		Process Improvement
Past Expiry Date		Manufacturing Process
Misidentified		Past Due

Marks/Chatter

OTHER :

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
TEL.: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com



CART
AEROSPACE
S011802

ss/Surge
rogram

Stock Pulled
Sequence

ealed
nction
igned/off center

	Positioned Wrong
	Outside Dimensions
	Over/Under tolerance
	Part Incorrect
	Part Lost/Missing
	Part Moved
	Drawing
	Finish
	Misread
	Turning Sequence



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER PO038454

Supplier: MEI001-VC
Metcor Inc.
560 Boul. Arthur Sauve
Saint-Eustache
QC
J7R 5A8 Canada
Phone: 450 473 1884
Fax: 450 491 5498

PO No: PO038454
PO Date: 11/22/17
Due Date: 11/30/17
Purchase Order Revision:
Revision Date:
Ship-To Contact: Lavoie, Chantal
clavoie@dartaero.com

E-MAILED
NOV 27 2017

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground
Pymt Terms: Net 30
Freight Terms:
Special Comments:

REVISED

Items

Line Item	Job	Part	Rev	Description	Item Tax	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extend. Price
1	165558	646.9711		Blade PO to Metcor: FINISH: HEAT TREAT TO 58-62 RC ROCKWELL HARDNESS PART ARE MADE FROM AISI A2 TOOL STEEL PLEASE NOTE: DETAIL C OF C REQUIRED		Firmed	11/30/17	25 pcs	0 pcs	25 pcs	\$2.86666/pcs	\$71.
2	167185	D5504-1		Blade PO to Metcor: FINISH: HEAT TREAT TO 58-62 RC ROCKWELL HARDNESS PART ARE MADE FROM AISI A2 TOOL STEEL PLEASE NOTE: DETAIL C OF C REQUIRED		Firmed	11/30/17	80 pcs	0 pcs	80 pcs	\$2.86666/pcs	\$229
3	168538	D5518-1		Crossbolt Spacer PO to Metcor: HEAT TREAT TO T4/T42 CONDITION MIN. UTS=30 KSI (60 HREW MIN) NOTE: DETAIL C OF C REQUIRED PART ARE MADE FROM 6061- T6 MATERIAL		Firmed	11/30/17	72 pcs	0 pcs	72 pcs	\$7.375/pcs	\$531
4	167204	D5304-1		Crossbolt Spacer 1--Issue P/O to Metcor ; P/O HEAT TREAT TO T4/T42 CONDITION MIN. UTS=30 KSI (60 HREW MIN) NOTE: DETAIL C OF C		Firmed	11/30/17	16 pcs	0 pcs	16 pcs	\$7.375/pcs	\$118

25x

SPR-124

\$ 80x

HT-124

recu 78x

SPR-127

DAE
38
9-89

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC J7R 5A8
Tel: 450-473-1884 / Fax: 450-491-5498

Reçu de livraison

Delivery Receipt

BON DE TRAVAIL Order	EXPÉDITEUR Shipper ID	BON D'EXPÉDITION Shipper
323569	1	124203

EXPÉDITION COMPLÈTE / Shipped Complete

CLIENT /Customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053



LIVRÉ À /Shipped To

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053

COMMANDE DU CLIENT Customer PO	BON DE LIVRAISON DU CLIENT Customer Shipper No.	TYPE DE MATÉRIEL Material Type	DATE DE LA COMMANDE Order Date	TRANSPORTEUR Carrier
38454		AL-6061	2017/11/24	

QUANTITÉ Quantity	No. PIÈCE / Part No.	NOM DE LA PIÈCE / Part Name	DESCRIPTION DE LA PIÈCE Part Description	POIDS Weight
----------------------	-------------------------	--------------------------------	---	-----------------

88 D5518-1

(72) D5518-1

(16) D5304-1

78x

SPAD-#

6,
DAW
38
9-88

1 BOITE DE CARTON

TYPE DE CONTENEUR Container Type	# DE CONTENEURS # Of Containers	COMMENTAIRES CONTENEUR Container Comments
BOITE DE CARTON	1	

CERTIFICAT

EMPAQUETAGE Packing	
------------------------	--

QUANTITÉ EXPÉDIÉE / Quantity Shipped : 88

POIDS EXPÉDIÉ / Weight Shipped : 6,00

QUANTITÉ RESTANTE / Quantity Remaining : 0

POIDS RESTANT / Weight Remaining : 0,00

APPROUVÉ

CERTIFICAT

QUANTITÉ EXPÉDIÉE Quantity Shipped: 88

POIDS EXPÉDIÉ / Weight Shipped : 6,00

Signature:

Date:

EXPÉDIÉ LE / Shipped On : 2017/12/05

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Certificat de Conformité Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
323569	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

1

COMMANDE DU CLIENT customer po	CLASSIFICATION PIECE part classification	MATÉRIEL material	MAÎTRE D'OEUVRE prime contractor	PROGRAM
38454	N/A	AL-6061		

SPÉCIFICATIONS DU PROCÉDÉ

processing specifications

SOL ANNEAL

SINGLE AGING TO CONDITION T42

EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results
CONDUCTIVITY	35 - 43 %IACS	20	38,5 - 41,5 %IACS
HARDNESS	80 HREW MIN	20	67,5 - 69,5 HREW
MESURE EN HR15TW = 68,5-67,5 HR15TW			

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
88	6	D5518-1 (72) D5518-1 (16) D5304-1 1 BOITE DE CARTON

78x

80A-12-7

5/12/17

DAS
38
9-89

COMMENTAIRES / comments

APPROUVÉ par / Approved by:



DATE: 2017-12-05

APPROUVÉ

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Certificat de Conformité Détaillé

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
323569	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

1

COMMANDE DU CLIENT customer po	CLASSIFICATION PIECE part classification	MATÉRIEL material	MAÎTRE D'OEUVRE prime contractor	PROGRAM
38454	N/A	AL-6061		
SPÉCIFICATIONS DU PROCÉDÉ processing specifications SOL ANNEAL SINGLE AGING TO CONDITION T42				
EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results	
CONDUCT	35 - 43 %IACS	20 (60 kHz)	38.5 - 41.5 %IACS	
HARDNESS	60 HREW MIN	20	67.5 - 69.5 HREW	
MESURE EN HR15TW = 66,5-67,5 HR15TW				
QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description		
88	6	D5518-1 (72) D5518-1 JOB 168538 (16) D5304-1 JOB 167204 1 BOITE DE CARTON		

COMMENTAIRES / comments

SOL. ANNEAL 9856F, 50 MIN

AGE HARDEN AMBIANT, 96 HRS

Heat treatment (HT) was performed with equipment that meets the requirements of requested specification. All HT operations were performed in compliance with the required HT specification and all verifications have been performed and documented. No unauthorized changes were performed in regards to the HT. We certify that the material was manufactured, sampled, tested and inspected in accordance with the material specification and the purchase order and was found to meet the requirements.

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Le traitement thermique (TT) a été fait en utilisant des équipements en conformité avec la spécification demandée. Toutes les opérations de TT ont été faites en conformité avec les requis de la spécification demandée et toutes les vérifications et les tests demandés ont été faites et documentés. Aucun changement n'a été faite par rapport au TT. On certifie que le matériel a été fabriqué, échantillonné, testé et inspecté en accord avec les spécifications du matériel et le bon de commande et le matériel rencontre les exigences spécifiées.

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Certificat de Conformité Détaillé

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
323569	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

1

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APPROUVÉ par / Approved by:

Isabel Otero

Isabel Otero

QA Technician



DATE: 2017-12-05



Dart Hawkesbury
1270 Aberdeen St Hawkesbury, ON K6A 1K7 Canada
Tel (613) 632-5200

Inventory

Operation Number	Operation	Serial Number	Job	Master Unit Number	Quantity	Weight	Original Serial Number	Location	Container	Status	Added	Special Comments	Label	Supplier	Change No	Inventory Type
Part Number: D5518-1 Revision: Crossbolt Spacer																
200	QC21-SA	S018582	168538		78 Ea	0		LG001		Stock	12/7/2017	Issue Container				False
Operation Totals:		1			78	0										
Part Totals:		1			78	0										
Part Number: M6061T6T0.375W.058 Revision: 6061-T6 Round Tube .375 X.058W																
100	Receive Ft	S011801	168538		0 ft	0		MAT013		Stock	11/20/2017	Issue Container				False
Operation Totals:		1			0	0										
Part Totals:		1			0	0										
Totals:		2			78	0										

Plex 1/24/2018 8:40 AM Dart.Poulin.Mario

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :							
Misidentified ☐	Past Due ☐								